-

by Fakultas Kesehatan Masyarakat Universitas Muhammadiyah Semarang

Submission date: 18-Aug-2023 02:54PM (UTC+0700)
Submission ID: 2147463779
File name: 41481_1.pdf (395.63K)
Word count: 4015
Character count: 19653

YOGASWARA, Andre & PRATAMA, Muchammad Sendyyudha. Analysis Dumbbell Wrist Exercise Against BackhandOverhead Lob Badminton Players. Quality in Sport. 2022;8(4):58-66. eISSN 2450-3118. DOI https://dx.doi.org/10.12775/QS.2022.08.04.006
https://apcz.umk.pl/QS/article/view/41481

The journal has had 20 points in Ministry of Education and Science of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of December 21, 2021. No. 32582.
Has a Journal's Unique Identifier: 201398. Scientific disciplines assigned: Economics and finance (Field of social sciences); Management and Quality Sciences (Field of social sciences).
Punkty Ministerialne z 2019 - aktualny rok 20 punktów. Załącznik do komunikatu Ministra Edukacji i Nauki z dnia 21 grudnia 2021 r. Lp. 32582. Posiada Unikatowy Identyfikator Czasopisma: 201398.
Przypisane dyscypliny naukowe: Ekonomia i finanse (Dziedzina nauk społecznych); Nauki o zarządzaniu i jakości (Dziedzina nauk społecznych).
The authors declare that there is no conflict of interests regarding the publication of this paper.
Received: 20.11.2022. Revised: 20.12.2022. Accepted: 28.12.2022.

Analysis Dumbbell Wrist Exercise Against Backhand Overhead Lob Badminton Players

Andre Yogaswara[1]*, Muchammad Sendyyudha Pratama[2]*

[1] Lecture, Universitas Muhammadiyah Semarang, Semarang, Indonesia.

[2] Undergraduate Sport Sciences Program, Universitas Muhammadiyah Semarang, Semarang, Indonesia.

* Author Correspondance. andreyogaswara@unimus.ac.id, A2B022004@student.unimus.ac.id

Abstract

To ascertain the impact of 0.5 kg and 1 kg dumbbell wrist exercises on beginning badminton players' backhand overhead lobs. (2) contrasting the efficiency of 0.5 kg and 1 kg dumbbell wrist exercises with a novice badminton player's backhand overhead lob? The research method employed is an experimental approach, and the treatment consists of 0.5 kg and 1 kg dumbbell wrist exercises, performed three times per week for a period of six weeks. A sample of 12 players from PB Sehat Semarang was split into two groups of six each, representing the population. Backhand overhead lob test: a tool for gathering data. The outcomes of the hypothesis analysis were t-count group A 4.029 and group B t-count 5.838 while the t-table from degrees of freedom n-1 + n2 - 2 is 6 + 6 - 2 = 10 and the level of confidence = 5% is 2.28. The study's main finding is that (1) beginners' backhand overhead lobs are affected by wrist exercises using 0.5kg and 1kg dumbbells. (2) The 0.5 kg dumbbell wrist exercise method and the 1 kg dumbbell wrist exercise differ in how well they increase the ability of the backhand overhead lob, but the 0.5 kg dumbbell wrist exercise has a more noticeable impact than the 1 kg dumbbell wrist exercise.

Key word: dumbbell wrist exercise; backhand overhead lob

INTRODUCTION

In Indonesia, where there are many different sports, badminton is one of the most popular. The public is well-aware of badminton both domestically and internationally (Brahms, 2010). A net, racket, and ball (cock) are used to play the game of badminton, which involves a variety of quick and slow strokes as well as deceptive maneuvers. There are more badminton associations and regional, national, and international championships than ever before, indicating that the sport is rapidly expanding in Indonesia. Additionally, it is demonstrated by the emergence of gifted young badminton players who can compete right away on the Indonesian badminton scene. To develop a new generation of badminton players who can learn sound techniques and strategies, it is required to train skilled athletes, coaches, and organizations as well as to implement an effective program plan.

The technique of playing badminton is very important for a badminton player to master. Mastery of these techniques includes Racquet Hold (Grip), Footwork, Strokes, and Stroke Patterns (Nugroho, 2020). For badminton players, mastering stroke technique is as important as mastering badminton playing techniques. Stroke techniques include serves, lobs, drop shots, drives, and smashes. Rob is one of his badminton shots. Lobs can be forehands and backhands (Grice, 2008). The technique of playing badminton is very important for a badminton player to master.

Mastering the backhand overhead lob technique for badminton players is not easy to master or perform. It takes movement skills to be able to execute the backhand overhead lob

correctly and purposefully. One of the factors that influence backhand overhead lobs is wrist flexibility. Wrist flexibility plays an important role in badminton, especially the backhand overhead lob. Improved flexibility allows players to move their wrists more flexibly. With the backhand overhead lob, wrist flexibility helps you hit the shuttlecock. One of the exercises is wrist mobility training. Flexibility is the ability of a muscle to stretch to its maximum extent. Flexibility determines the range of motion you can perform. Good flexibility allows athletes to maximize extension and flexion and prevent muscle and ligament damage (Sepdanius, 2019).

There are two types of calisthenics: relative flexibility and absolute flexibility. Relative flexibility is designed to train not only the range of specific movements but also the length and width of the body parts they affect. It trains flexibility only (Sepdanius, 2019). This study uses absolute flexibility exercises with dumbbells. A dumbbell is a strength-training device consisting of a short bar with a weight plate on one side, used for single-arm exercises (Baechle & Earle, 2012). Dumbbells are used to train wrist mobility with 0.5 kg and 1 kg weights. The type of dumbbell exercise used is the dumbbell wrist exercise. Effects of 0.5 kg and 1 kg dumbbell wrist exercises on backhand overhead lobs in PB Sehat badminton players from Semarang city

Image 1
Dumbbell (Weight Training) (Baechle & Earle, 2012).

METHOD

The population of this study was PB Sehat badminton players. The sample for this study consisted of 12 individuals. The sampling technique used a targeted sampling technique. This sampling technique is said to be performed by selecting people based on a specific purpose rather than based on strata, random, or region. The technique is based on conditions determined to obtain similar samples, so there are no significant differences. Sample features include:

a. Samples are novice players
b. The sample is male.
c. The sample has understood the technique of hitting the backhand overhead lob.

This research method, using experimental research, is one research approach that consciously seeks the appearance of variables and controls their influence on learning success (Suwartono, 2014). Experiments were conducted by performing a pretest, a treatment, and a post-test. Pre-testing for this study tested his backhand stroke prior to treatment, and the treatment itself consisted of wrist exercises with his 0.5 kg and his 1 kg dumbbells. And the post-test was done by retesting the backhand lob.

Pretest	Group A	*treatment dumbbell 0,5kg*	*Post-test*
	Group B	*treatment dumbbell 1kg*	

Data analysis analyzes the results of data processing (Suwartono, 2014) and explains that analysis of experimental results is always based on matched subjects using correlated-sample t-tests. To facilitate the performance of data analysis using the t-test formula

No	*Subyek*	*X*	*X*	*D* ($X_{e2} - X_{e1}$)	*d* *(D– MD)*	
1						
2						
Dst						
		∑*X*	∑*X*	∑*D*	∑*d*	∑

Keterangan:

X_{e1} : Experimental group value 1

Xe2 : Experimental group value 2

D : Differences between each pair

d2 : The square of the mean deviation of the difference

∑ : Sigma or sum

Accept Ho if the value of t(count) < t(table).

Calculations are performed by statistical calculations of pre-test and post-test data. The probability of occurrence in the computation is that if the value of t obtained from the statistical computation is greater than or equal to the value in the t-table, then the null hypothesis is rejected.

RESULT

This study was conducted using experimental techniques. The dependent variable measured in this study was the backhand praise ability of entry-level male badminton player PB Sehat Semarang. The study was divided into two groups, Group A (0.5 kg dumbbell training group) and Group B (dumbbell training group). 1 kilo). Two groups received an entry test (pre-test), training or treatment (treatment), and a final test (post-test). 16 surveys were conducted. After we have the results from the initial test and the final backhand praise test, we need to test their significance using the t-test formula.

The division of exercise groups is based on the results of the Pree-Test.

Group A (Dumbbell Wrist Exercise 0.5kg)			Group B Dumbbell Wrist Exercise 1kg)		
No	Name	Value	No	Name	Value
1	Daniel	20	7	Edo	27
2	Kiko	23	8	Deo	29
3	Nazario	25	9	Dafa	26
4	Arkan	26	10	Dimas	26
5	Sabil	18	11	Surya	26
6	Heri	22	12	Fakri	29

Group A is the group treated with 0.5 kg dumbbell exercise foam. Group B, on the other hand, was the group that underwent treatment or some exercise with 1 kg dumbbells. From the calculation results, the data can be divided into two groups: Group A (exercises with 0.5 kg dumbbells) and Group B (exercises with 1 kg dumbbells).

The grouping and editing results for Group A (exercises with 0.5 kg dumbbells) and Group B (exercises with 1 kg dumbbells) can be seen in the Hypothesis Test Analysis Requirement results. Test the difference between pre-test and post-test results for Group A. The result is shown in the image below. Calculations are shown in the hypotheses.

Ho: count ***< tTable***

Ha: Tcount ≥ ttable

Test the hypothesis using the formula:

$$t = \frac{Mk - Me}{\sqrt{\frac{\sum d^2}{N(N-1)}}}$$

Ha is accepted if ttable< tcount

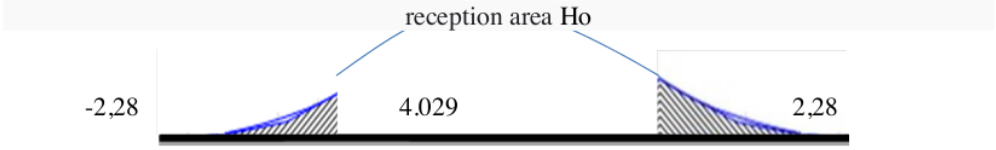
Test the difference in the results of the pre-test and post-test of group A

No	Name	pre-test	post-test	D	d	d^2
1	Daniel	20	24	4	1,16667	1,36111
2	Kiko	23	24	1	1,833333	3,36111
3	Nazari	25	30	-5	2,16667	4,69444
4	Arkan	26	27	-1	1,833333	3,36111
5	Sabil	18	20	-2	0,833333	0,69444
6	Heri	22	26	-4	-1,16667	1,36111
		134	151	-17	0	14,83333

α = 5% with db = 6 + 6 -2 = 10 obtained t(0.975)(10) = 2.28. T(table) = t(1-1/2α;n1+n2-2) = t(0.975;10) = 2.28

The pre-test (pre-workout) for Group A (0.5 kg dumbbell exercise) yields a minimum score of 18 and a maximum score of 26 with a mean of 22.33 and a standard deviation of 3.011. The post-test (post-load) summary results for group A (0.5 kg dumbbell training) are: min score 20, max score 30, mean 5.16, standard deviation 3.371, tcount (4.029386), ttable (2.228139) In that case, we can conclude that there is a significant difference between the pre-test and post-test results for group A because it falls within the range of Ho rejection

.



If the tcount is within the rejection bounds of Ho, we can conclude that there is a large impact on the pre-and post-test results for group A. The difference between the pretest and posttest results for Group B is shown in the image below. For the calculation, you can see in Hypothesis. The following formula was used to test the hypothesis:

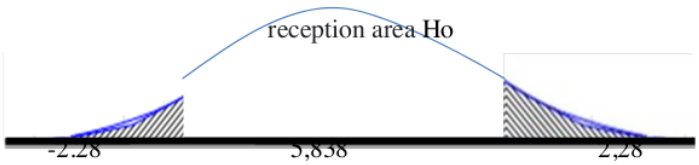
$$t = \frac{Mk - Me}{\sqrt{\frac{\sum d^2}{N(N-1)}}}$$

Test the difference in results before and after testing Group B

No	Name	Pre-test	Post-test	D	d	d^2
1	Edo	27	29	-2	0,5	0,25
2	Deo	29	32	-3	-0,5	0,25
3	Surya	26	27	-1	1,5	2,25
4	Dafa	26	28	-2	0,5	0,25
5	Dimas	26	30	-4	-1,5	2,25
6	Fakri	29	32	-3	-0,5	0,25
		163	178	-15	0	5,5

α = 5% with db = 6 + 6 -2 = 10 obtained t(0.975)(10) = 2,28

The pre-test summary for Group B (1 kg dumbbell exercise) is a minimum score of 26, a maximum score of 29, a mean of 27.16, and a standard deviation of 0.576039. The post-test (post-load) summary for group B (dumbbell training 1 kg) is min score 27, max score 32, mean 29.66, standard deviation 2.065 tcount (5.838742), ttable (2 .228139). then in the domain of Ho rejection, we can conclude that there is a difference between the pretest and posttest results for group B



If tcount is within the rejection bounds of Ho, we can conclude that it has a significant effect on the pre-and post-test results for group B.

Data Analysis

Data analysis requirements in testing research hypotheses on the effect of 0.5kg dumbbell and 1kg dumbbell wrists on wrist flexion in novice backhand overhead lob badminton PB Sehat Semarang. We then performed several other requirements test steps: Here are the results obtained in post-workout tests between Group A (exercises with 0.5 kg dumbbells) and Group B (exercises with 1 kg dumbbells): With a = 5% and db = 6 + 6 - 2 = 10, we get t (0.975) (10) = 2.28. Since tcount 4.029 > ttable 2.28, we can conclude that there is a difference between pre-test and post-test results for group A because tcount is within the rejection bounds of Ho. Also, for the pre-test and post-test difference results for a = 5%, db = 6 + 6 – 2 = 10 in the 1kg wrist dumbbell training group, t(0.975)(10) = (2, 28) You get Since tcount 5.84 > ttable 2.28, t is within the rejection bounds of Ho and we can infer the difference between the results before and after the test for group B.

Hypothesis test

Backhand Lob Badminton Novice PB Sehat Semarang Analytical requirements when testing research hypotheses on the effects of 0.5 kg and 1 kg dumbbell exercises on wrist flexion. Various pre-workout and post-workout tests in Group A (exercises with 0.5 kg dumbbells) and Group B (exercises with 1 kg dumbbells) yielded the following results: Hypothesis test:

1) There is an effect of 0.5 kg and 1kg dumbbell wrist exercise on the backhand overhead lob badminton players, Semarang City
2) There is a difference in the effect of 0.5 kg and 1 kg dumbbell wrist exercises on the backhand overhead lob badminton players in Semarang City.

This test was designed to see the difference in training results between the 0.5kg dumbbell list and 1kg dumbbell list and backhand overhead lob, pre- and post-workout stress with statistical results as shown in the table below. Determined by testing.

Summary of tcount ttable exercise for 0.5 kg dumbbell and 1 kg dumbbell

Group	tcount	ttable		Description
0,5kg dumbbell exercise	4,029	2,28	4,029> 2,28	Significance
1kg dumbbell exercise	5,83874	2,28	5,84 > 2,28	Significance

Calculating as shown in Table 4.5 gives tcount > ttable at 4.029 > 2.28, indicating that the 0.5 kg dumbbell exercise for the backhand lob shot is significant. That tcount > ttable 5.838742 > 2.28 and that the 1 kg dumbbell wrist exercise has a significant backhand overhead lob. The analysis presented in Table 4.4 suggests differences between the 0.5 kg dumbbell wrist exercise group and the 1 kg dumbbell wrist exercise group. The result of the pre-and post-test difference for the 0.5 kg dumbbell training group with a=5% and db=6+6-2=10 was t(0.975)(10)=2.28. Since tcount 4.029 > ttable 2.28, we can conclude that t is in the rejection region of Ho, so there is a difference between the results before and after the test in group A. And for the pre-test and post-test difference results for the 1 kg dumbbell training group with db = 6 + 6 – 2 = 10 and a = 5%, we get t(0.975)(10) = (2.28). If tcount 5.84 < tTable 2.28, then t is within the rejection bounds of Ho, so we can conclude the difference between the pretest and posttest results for Group B.

Test the difference in the results of post-test group A and post-test group B

Group A 0,5kg dumbbell	Group B 1kg dumbbell	D	D	d^2
24	29	-5	-0,5	0,25
24	32	-8	-3,5	12,2
30	27	3	7,5	56,2
27	28	-1	3,5	12,2
20	30	-10	-5,5	30,2
26	32	-6	-1,5	2,25

There are significant differences in the post-test results between group A and group B, but it is not yet known which one is better.

DISCUSSION

The purpose of this study was to determine the effects of 0.5 kg and 1 kg dumbbell wrist exercises on the backhand overhead lob in badminton. Dumbbell exercises increase wrist flexibility and affect overhead lobs in his backhand. There are two types of calisthenics: relative flexibility and absolute flexibility. Relative flexibility is designed to train not only the range of specific movements but also the length and width of the body parts they affect. It trains flexibility only. This study uses absolute flexibility exercises with dumbbells.

Mastering the backhand overhead lob technique is very important. If your backhand overhead lob mastery is not good, it means your player is not performing well. If this happens too often, the player will find it difficult to progress through the game and easily lose points. Learning the backhand overhead lob technique is not easily mastered or performed by badminton players. It takes movement skills to be able to execute the backhand overhead lob correctly and purposefully. Mastering the backhand overhead lob movement takes practice. One of his exercises used is wrist mobility training with dumbbells.

The result of data analysis is evident from the detection of tcount greater than ttable. So for group A, tcount 4.029 > ttable 2.28. On the other hand, the tcount for

group B is 5.84 > ttable 2.28. The difference between the results after the test and before the test was 2.83 in group A (0.5 kg dumbbell exercise group), which was larger than 2.50 in group B (1 kg dumbbell exercise group). Therefore, while dumbbell list exercises can best improve backhand overhead lob skills, the exercise that yields the more significant results is the 0.5 kg dumbbell list exercise method.

A research hypothesis test conducted states that 0.5 kg and 1 kg dumbbell exercises are effective for backhand lobs. The results of this study show that wrist flexibility influences the backhand overhead lob. The statistical analysis results show that there is a difference between the 0.5 kg dumbbell wrist motion and the 1 kg dumbbell motion for the backhand lobe. From this study, the results of the samples investigated between the 0.5 kg dumbbell list exercise and the 1 kg dumbbell list exercise before and after training were most impactful when the exercise was performed with the 0.5 kg dumbbell list exercise.

The initial conditions for the two exercise groups were neither different nor the same. Each group starts with the same skill. After exercise, the two groups experienced different improvements. The initial conditions for the two exercise groups were neither different nor the same. Each group starts with the same ability.

Effect of 0.5 kg dumbbell exercise on backhand overhead lobs

This backhand overhead lob is difficult for badminton players and players who perform backhand lobs often make mistakes. Therefore, to get a good backhand lob, you need to develop arm strength and wrist flexibility. Wrist flexibility plays an important role in badminton, especially in backhand lob shots. Improved flexibility allows players to move their wrists more flexibly.

This study uses experimental methods. Experiments were conducted by performing a pretest, a treatment, and a post-test. The pretest for this study consisted of testing the backhand overhead lob before treatment, while the treatment itself was performed by wrist exercises using a 1kg dumbbell. It was done by retesting the backhand overhead lob.

The evaluation results for Group A are as follows.

The pretest (pre-workout) for Group A (0.5 kg dumbbell exercise) returned a minimum score of 18, a maximum score of 26, a mean of 22.33, and a standard deviation of 3.011. The post-test (post-load) summary results for group A (dumbbell training 0.5 kg) are min score 20, max score 30, mean 5.16, standard deviation 3.371, tcount(4.029386), ttable. (2.228139) then it falls within the range of Ho rejection, so we can conclude that there is a significant difference between the pretest and posttest results for group A.

Effects of 1 kg dumbbell exercise on backhand overhead lobs

This backhand overhead lob is difficult for badminton players and players who perform backhand lobs often make mistakes. Therefore, to get a good backhand lob, you need to develop arm strength and wrist flexibility. Wrist flexibility plays an important role in badminton, especially in backhand lob shots. Improved flexibility allows players to move their wrists more flexibly.

This study uses experimental methods. Experiments were conducted by performing a pre-test, a treatment, and a post-test. The pre-test for this study consisted of testing a backhand lob shot before treatment, while the treatment itself was performed by wrist exercises using a 1kg dumbbell. It was done by retesting the hand lob.

Group B evaluation results are as follows.

The pre-test (pre-training) summary for Group B (1 kg dumbbell exercise) is a minimum score of 26, a maximum score of 29, a mean of 27.16, and a standard deviation of 0.576039. Post-test summary (post-load) for group B (dumbbell 1 kg

exercise), minimum score 27, maximum score 32, mean 29.66, standard deviation 2.065, tcount (5.838742), table (2.228139), pretest for group B and post-test results can be concluded in the area of Ho rejection.

Differences in the effects of 0.5 kg and 1 kg dumbbell exercises on backhand overhead lobs

Summary of the results of statistical calculation of descriptive data between group A and group B before and after exercise.

Treatment	Analysis	Pre-test	Post-test	Improved Pre-test and Post-test results
Group A 0,5kg dumbbell exercise	rata-rata	22,33	25,16	2,83
	SD	3,011	3,371	3,26
Group B 1kg dumbbell exercise	rata-rata	27,16	29,66	2,50
	SD	1,471	2,065	0,594

There was a significant increase in post-test score between the 0.5 kg dumbbell exercise and the 1 kg dumbbell post-test results because the t counts were within the Ho rejection range for both exercises, but which exercise was more significant? To find out, I compared the differences. The increase in test scores before and after group A (dumbbell wrist exercise 0.5 kg) was 2.83. Group B (dumbbell wrist exercise 1 kg) is 2.25. From this, we can conclude that exercise A is better than exercise B.

CONCLUSION

The results of the hypothesis-testing data analysis in this study can be summarized as follows.

1. 0.5kg and 1kg dumbbell weight exercises are effective in improving backhand lob ability.
2. Although there is a difference in increasing backhand overhead lob performance with 0.5 kg dumbbell weight training and 1 kg dumbbell load training, 0.5 kg dumbbell training is more important than 1 kg dumbbell training.

REFERENCES

Baechle, T. R., & Earle, R. W. (2012). Weight Training: Steps to Success. In *Human Kinetics*.

Brahms, B. V. (2010). *badminton handbook*. Sportpublishers' Association.

Grice, T. (2008). Badminton (Steps to Success). In *Human Kinetics* (2nd ed.). Human Kinetics.

Nugroho, S. (2020). *Perkembangan Olahraga Permainan Bulutangkis*. FIK UNY.

Sepdanius, E. (2019). *Tes dan Pengukuran Olahraga* (1st ed.). PT. Raja Grafindo Persada.

Suwartono. (2014). Dasar-Dasar Metodologi Penelitian. In *ANDI Yogyakarta*.

-

ORIGINALITY REPORT

24%	23%	9%	6%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

MATCH ALL SOURCES (ONLY SELECTED SOURCE PRINTED)

18%

★ apcz.umk.pl

Internet Source

Exclude quotes	Off	Exclude matches	Off
Exclude bibliography	Off		